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-

RAISING THE STANDARD FOR ROOM DISINFECTION

*WHOLE ROOM DISINFECTION SOLUTION – INFECTION CONTROL AND
PREVENTION*

UV DISINFECTION ROBOTS



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360-Degree Dry-Fog UVD Robots



AHUS-R

The intelligent dry fog UVD robots can atomize a variety of disinfectants, such as H₂O₂ (hydrogen peroxide), HOCl/HClO (Hypochlorous acid), and other disinfectants, into super dry mist and disperse to the disinfection area in high-speed airflow. It could reach the disinfection area by autonomous navigation to obstacle avoidance, and move to the disinfect areas for 360-degree disinfection. It could also support iPad control for quick and central disinfection.

Customers can choose sterilization function flexibility. Either use the dry fogging sterilization or using the UV-C lamps sterilization. The density of the dry fogging is determined by the concentration of the disinfectants. Although people can exposure to some low level or low-density disinfectants, some chemical disinfectants are harmful. To ensure the safety and health of employees engaged in handling disinfectants, a carefully planned chemical safety program is essential. Please refer to your local regulations and laws to ensure the safety and health of employees. It's highly suggested to arrange the sterilization when space is in unoccupied mode. There are 2 groups of UV-C lamps are used for sterilization as well. Only one type of sterilization can work each time, either dry-fogging or UV-C sterilization. They cannot work at the same time.

Using this disinfection method by a robot could save manpower and lower the infection risk effectively as well as reduce human error. It could make disinfection more efficient and improve safety greatly.



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Parameter



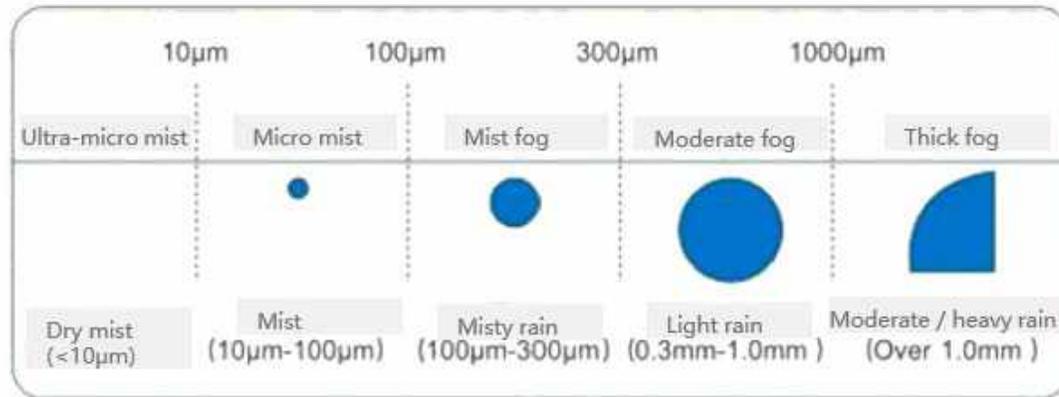
Movement: autonomous path planning
 (covers an area of 25,000m²)
 Speed: 0-0.6m/s
 Disinfection efficiency: 1000m³ disinfection in fastest 15min
 Run time: 5~6h fully charged (charging automatically)

Spray particle size: ≤10μm
 Spray rate: 2L/h-5L/h
 Disinfection level: high efficiency, 6-log level
 Liquid volume: 15L



Principle of Efficient Disinfection

Dry-fog Spraying Disinfection



The disinfection performance is achieved by diffusing nanoscale liquid beads to the disinfection area. The mist can be called “dry” when the average diameter of the droplets is less than 10 microns. The dry mist will not settle or move randomly, nor aggregate to large droplets; they will rebound when contacting the surface and will not rupture to wet the surface. This characteristic determines that they could cover some hard-to-reach areas. Dry-fogging volume can reach 3000g/h. No residue.



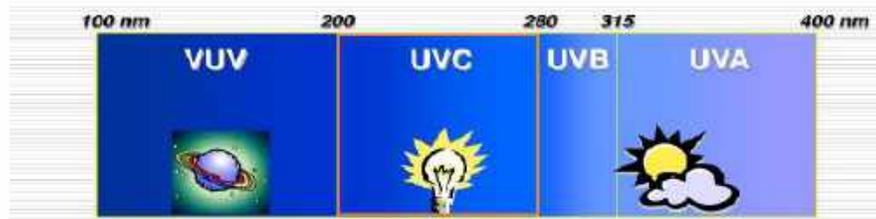
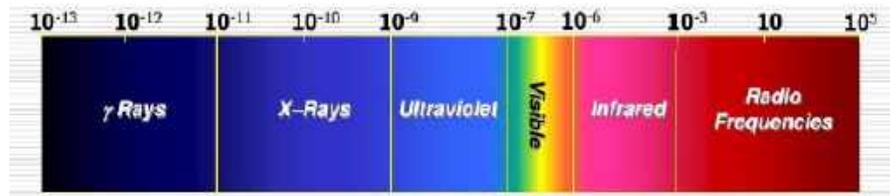


Principle of Efficient Disinfection

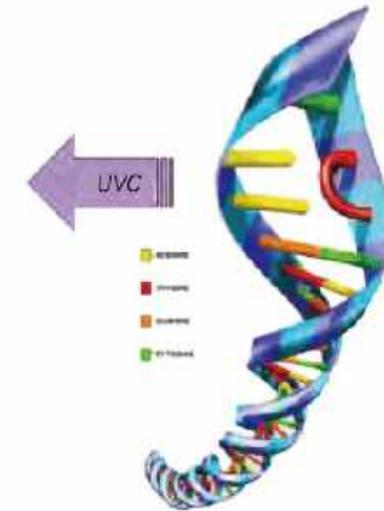
Short-Wavelength UV-C Sterilization

Studies have shown that UVC at 254 nm is effective against all foodborne pathogens, natural microbiota, molds, and yeasts. Because microorganisms come with different sizes and shapes that affect their UV absorption, the required time for killing each species varies.

UV sterilization also known as UV disinfection or ultraviolet germicidal irradiation (UVGI) works by breaking down certain chemical bonds and scrambling the structure of DNA, RNA and proteins, causing a microorganism to be unable to multiply. When a microorganism is unable to multiply, it is considered dead since it cannot reproduce within a host and is no longer infectious.



Intact DNA



Irradiate damaged DNA



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Infrared Thermal Scanning, Imaging, and Temperature Measurement

Dual-light AI faces recognition, multi-person temperature measurement at the same time for highly effective infection detection and control. With an intelligent temperature detection recording system.

Combining AI core algorithms to realize the recognition and tracking of portraits, and save the face and temperature in the cloud, support high temperature alarm and multi-machine screen monitoring, and the temperature measurement error is $\pm 0.3^{\circ}\text{C}$ for 0.8-2 meters detection, ensuring that it will not be in the case of large passenger flow There are false positives and under-reports.

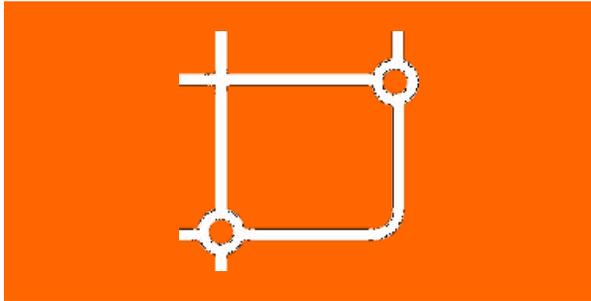
High-risk personal locking, and manual remote monitoring. Suitable for public places such as airports, exhibitions, hospitals, stations, museums, and other Crowded areas.





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Three Working Mode



Task Disinfection Mode

Using task configuration function to set disinfection area, time, and frequency to a robot. It could do path planning, avoid obstacles, and disinfect intelligently as long as the disinfectant is sufficient. In addition, it can return to the charging pile autonomously when the battery is low.



Regional Disinfection Mode

12-inch HD display could show disinfected area and points directly, and it's possible to send commands from the screen to disinfect specific points or areas.



Real-time Control Mode

Equipped with an iPad to control the robot remotely for automatic disinfection; remote control without the network is also workable.



Features

High efficiency:

- Multi-angle 360° stereo spray with automatic lifting nozzle. Sterilization rate can be 99.99%
- Ultra-dry disinfectant spray, up to 6-log dispersion with full coverage
- 1000 m3 disinfection can be done within only 15 minutes

Intelligent:

- Use task configuration tool to configure task time, route, content, move frequency, task planning
- By pressing a button, remote control or timer task to start disinfection
- Working logs automatically saved; autonomous navigation, obstacle avoidance, and autonomous charging;

Safety:

- Ultra-dry disinfectant atomization with no residue, way safer
- Human-machine separation, reducing personnel contact so as to reduce the risk of infection effectively
- CE and FCC certified for EU and the USA markets.





Navigation

Autonomous & optimal

Based on SLAM 3D navigation and obstacle avoidance system, the robot can scan the surrounding environment, provide map data and build environmental maps precisely in no less than a 15 meters radius, arrive at the destination with autonomous navigation, obstacle avoidance, and optimal path planning.



localization and
mapping
multi-sensor

Dynamic path planning

- Road adaptive
- Accurate arrival
- autonomous navigation and optimal path planning
- autonomous charging system





Nozzle

Automatic lifting & 360° coverage

The 6-hole nozzle on top of the robot could ensure a 360° coverage without dead angle and could raise automatically.

UV lights on both sides will rise to the highest position automatically during operation and will back to the original position after finishing.

- ✓ Raise to higher position to ensure better disinfection space
- ✓ Distance between mist producing and spray to ensure enough space to increase spray output
- ✓ The nozzle could be retracted into the robot, which is safer and more convenient for transportation and storage





Liquid Storage Tank

Large Volume & More Efficient

- ✓ 15L Large liquid volume to ensure larger working space far exceeds the standard 1L volume on the market
- ✓ 3L/h atomization speed to ensure high efficiency far exceeds the standard 0.24L/h on the market
- ✓ Rapid mapping with up to 25m scan radius of the chassis





Applications



Exhibition



Showroom



4S Store



Airport



Government



Retailing



Court



Bank



Entertainment



Hotel



Medical



Home Life



Library



Museum



Government



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Applications





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Applications





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Autonomous Mobile UV Disinfection Robots



AHUV-Rs

AHUV-Rs Autonomous mobile Ultraviolet Disinfection (UVD) robots can be used for unoccupied space disinfection. The software and sensor-based emergency power-off function will work when it detects personal during the disinfection. Once people leave, it will automatically switch to the work model and finish the disinfection process again. It's safe and no person will exposure to UV-C lights.

With 8 groups of short-wavelength UVC lamps, the UVD robots provide 360-degree high-intensity room disinfection and no-contact option to eliminate human error caused by labor cleaning. AHUV-Rs UVD robots are designed for regular cleaning routine for infection controls and reduce HAIs in hospitals and other areas and generate revenues. It's easy to install and use, and can be moved to treat/sterilize one after another area.



Structure



With the detection sensor and emergency stop button, the UVD (UV Disinfection) robot (120-240V/2A Charging Pile Input) is a safe and effective autonomous mobile solution for air and surface disinfection. The product is CE certified for the EU markets. We're doing FCC testing for the US markets it will be soon available.

With 8 groups, 40W each, short-wavelength UV-C lamps, the UVD robot can produce high-intensity UV irradiation to prevent and reduce the spread of infectious microorganisms in the environment by breaking down their DNA structure.

The UVD robot is pre-fitted in our factory, and it's easy to install and operate.



THANKS

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